

Abstrak

HUBUNGAN ANTARA EKSPRESI AEG-1, IL-8, DAN COX-2 PADA TRIPLE NEGATIVE BREAST CANCER OPERABLE DENGAN DISEASE FREE SURVIVAL

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Latar belakang: Kanker payudara merupakan kanker dengan insidensi tertinggi di Indonesia, dan subtipe triple-negative breast cancer (TNBC) memiliki prognosis paling buruk. Ekspresi AEG-1, IL-8, dan COX-2 berperan dalam karsinogenesis TNBC melalui peningkatan proliferasi, angiogenesis, invasi, metastasis, dan penghindaran respons imun. Ketiganya diketahui diekspresikan lebih tinggi pada jaringan kanker dan berpotensi sebagai penanda prognosis.

Tujuan: Menganalisis hubungan antara ekspresi AEG-1, IL-8, dan COX-2 dengan *disease-free survival* (DFS) pada pasien TNBC operabel, serta mengevaluasi hubungan antar ketiga biomarker.

Subjek dan Metode: Penelitian kohort ini melibatkan 54 pasien TNBC operabel. Ekspresi AEG-1, IL-8, dan COX-2 dianalisis menggunakan qRT-PCR dan dikategorikan berdasarkan nilai *cut-off* optimal. DFS yaitu periode bebas lesi baru pascaoperasi, dinilai melalui pemeriksaan penunjang lokoregional dan metastasis jauh. Analisis dilakukan menggunakan uji chi-square, Kaplan-Meier, log-rank, serta regresi Cox univariat dan multivariat.

Hasil: Terdapat hubungan signifikan antara ekspresi AEG-1 ($p=0,001$), IL-8 ($p=0,012$), dan COX-2 ($p=0,023$) dengan DFS. Hubungan bermakna juga ditemukan antara AEG-1 dengan IL-8 dan COX-2, serta antara COX-2 dan IL-8 ($p=0,000$). Ekspresi AEG-1 merupakan faktor paling berpengaruh terhadap DFS ($p=0,000$; HR=6,003).

Kesimpulan: Ekspresi AEG-1, IL-8, dan COX-2 berhubungan signifikan dengan DFS, dan AEG-1 merupakan prediktor independen terkuat terhadap prognosis pasien TNBC operabel.

Kata kunci: Kanker payudara, TNBC, AEG-1, IL-8, COX-2, DFS

Abstract

RELATIONSHIP BETWEEN AEG-1, IL-8 AND COX-2 EXPRESSION IN OPERABLE TRIPLE NEGATIVE BREAST CANCER WITH DISEASE FREE SURVIVAL

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Background: Breast cancer is the most common cancer in Indonesia, with triple-negative breast cancer (TNBC) being the subtype with the poorest prognosis. The expression of AEG-1, IL-8, and COX-2 plays a role in TNBC carcinogenesis through mechanisms such as increased proliferation, angiogenesis, invasion, metastasis, and immune evasion. These biomarkers are known to be overexpressed in malignant compared to normal or benign breast tissue and may serve as prognostic indicators.

Purpose: To analyze the association between AEG-1, IL-8, and COX-2 expression and disease-free survival (DFS) in operable TNBC patients, as well as the interrelation among these biomarkers.

Subjects and Methods: This cohort study involved 54 operable TNBC patients. AEG-1, IL-8, and COX-2 expression was analyzed using qRT-PCR and categorized based on optimal cut-off values. DFS, defined as the period without new lesions after surgery, was assessed through imaging and clinical evaluations of locoregional and distant metastases. Statistical analysis included chi-square test, Kaplan-Meier, log-rank test, and univariate and multivariate Cox regression.

Results: A significant association was found between AEG-1 ($p=0.001$), IL-8 ($p=0.012$), and COX-2 ($p=0.023$) expression and DFS. AEG-1 was significantly correlated with IL-8 and COX-2, and COX-2 with IL-8 ($p=0.000$). Multivariate Cox regression identified AEG-1 expression as the most influential independent factor affecting DFS ($p=0.000$; HR=6.003).

Conclusion: AEG-1, IL-8, and COX-2 expression is significantly associated with DFS in operable TNBC patients, with AEG-1 being the strongest independent prognostic factor.

Keywords: Breast cancer, TNBC, AEG-1, ki-67, DFS